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ABSTRACT

Direct observations of the jobs of 370 workers were used to explain perceptions of monotony and feelings of boredom associated with work. Of the several observational measures of task characteristics that were constructed, the most efficient predictor of monotony and boredom was the number of times during a fixed period that the most often-repeated task was performed. Intelligence and off-the-job activity levels were investigated as possible moderators of the relationship between task characteristics, monotony, and boredom. Intelligence had no significant effect on the association between job characteristics and either monotony or boredom. The moderating effects of intelligence were confined to the relationship between perceived monotony and feelings of boredom. That is, monotony was more closely associated with boredom among more intelligent workers. The moderating effects of off-the-job activity were likewise strongest on the relationship between perceptions of monotony and feelings of boredom, with the latter two variables being more strongly related among workers who were more active off their jobs. (Author)

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WHAT MAKES JOBS MONOTONOUS AND BORING?

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Experiments with job enrichment and job enlargement as ways of increasing workers' performance or job satisfaction lead to two conclusions. First, published reports of such experiments indicate that they have not been unqualified successes (Hulin and Blood, 1969; Lawler, 1969; Quinn, Staines, and McCullough, 1974). Even this judgment does not take into account a large number of experiments that, because they were unsuccessful, went unreported. Second, even the successes have often been restricted to particular working populations. Hulin and Blood observe, for example, that

> ...the argument for larger jobs as a means of motivating workers, decreasing boredom and dissatisfaction, and increasing attendence and productivity is valid only when applied to certain segments of the work force--white-collar and supervisory workers and nonalienated blue-collar workers (1969, p.388).

In a more recent review Katzell (1974) concluded that job enrichment "works best for brighter, less alienated people."

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Critical to most programs of job redesign is the alteration of one of Hackman and Lawler's (1971) four "core characteristics" of jobs--variety. The common assumptions are that increasing variety--through job enlargement, enrichment, or rotation--will reduce the monotony of jobs and that the ensuing reduction of boredom will lead to greater satisfaction and productivity. But this chain of causal assumptions has yet to be forged solidly, and the personal or environmental

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conditions that may limit the assumptions are scarcely understood. As Dickson has said, "job rotation and job enlargement schemes enlarge the levels of variety ... in individual jobs without any clear conception of the fundamental variables involved (1971, p.742)."

The research reported here concerns three such variables:

1. Task characteristics, measured independently of the worker doing the task, with a particular emphasis on those task characteristics that provide variety in jobs.

2. Monotony, or the worker's perception of the amount of variety in his or her job.

3. Boredom, or the worker's affective reaction based on this perception. Excluded from the present research were considerations of the neurological, pharmocological, and behavioral concomitants of boredom.

The analyses were designed to answer three questions:

1. What is the contribution of task characteristics to the experience of occupational monotony and to feelings of boredom? On the basis of very early work by Florence (1924), Li (1928), Münsterberg (1913), and Wyatt, Langdon, and Stock (1927) and more recent laboratory work by Geiwitz (1966), it could be anticipated that the relationship would not be very great, since previous investigations had generally concluded that work lacking in variety was not always perceived as repetitive. It was also predicted that task characteristics would be better predictors of monotony than of boredom, the latter reaction being further removed from the environment in the assumed causal sequence.

2. What aspect or aspects of the temporal configuration of tasks were the most effective determinants of monotony and boredom? The three critical aspects were the number of tasks done as part of the job, the lengths of these tasks, and how often each was repeated.

3. What individual differences moderate the relationship (a) between task characteristics and perceived monotony, and (b) between perceived monotony and feelings of boredom? Do individual differences affect worker's perceptions of the amount of variety provided by their work environment? Or do these differences influence their subsequent reactions once these perceptions have been established? Or both?

Studies of occupational boredom and tolerance of monotony have identified several personal characteristics that may ameliorate the effects of jobs that lack variety. These moderators are strikingly similar to those that circumscribe the success of job redesign programs. Geiwitz (1964) cites as relevant variables intelligence, creativity, desire for variety in social activity, and the tendency to daydream. Using previous research to draw a composite picture of "the personality of the person who is satisfied in doing repetitive work," Smith characterizes this person by

> ... contentment with the existing state of affairs, placidity, and perhaps rigidity. His satisfaction would seem to be more a matter of close contact with and acceptance of reality than of stupidity or insensitivity (1955, p. 329).

On the basis of her own work, however, Smith was able to confirm only

> ... that the susceptible worker is likely to be young, restless in his daily habits and leisure-time activities, and less satisfied with personal, home, and plant situations in aspects not directly concerned with uniformity or repetitiveness (1955, p. 329).

From this compendium of moderator variables two were selected for analysis: intelligence and off-the-job activity level.

Method

Subjects

The 370 workers studied were employed by two automotive suppliers, a printing company, and a research and development firm. Twenty-six percent were in managerial or professional occupations; 17 percent were clerical workers; and the remaining 57 percent were operatives, craftspeople, or service workers. The median age of the sample was 35 years, and their median years of schooling was 12.1. Fifty four percent of the sample were women.

Procedures

Workers were first interviewed in their homes; a month later they were observed on their jobs on two separate occasions. The training of the observers, as well as the general observation methods used, have already by described by Jenkins, Nadler, Lawler, and Cammann (in press). Each observer devoted 20 minutes of each hour-long observational period to keeping a continuous record of the discrete tasks performed by the worker during that period. This task description information was subsequently coded in terms of total number of tasks performed and the frequency and duration of each. The analysis sample was confined to workers who were observed twice for exactly 20 minutes without being interrrupted for reasons not related to their work.

Measures

Observed task characteristics. Five aspects of the observed tasks were used as predictors of monotony and boredom.

1. Number: the total number of different tasks performed by the worker.

2. Durations: the mean time of the tasks, computed over the total number of tasks that the worker performed.

3. Repetitions: the number of times that the most frequently repeated task was repeated.

4. Ratio of durations and repetitions. The duration of each task, in minutes, was first divided by the number of times the task was repeated. These ratios were then summed over all tasks performed.

5. Entropy. This measure, borrowed from information theory, had been used by Hill (1970) and Dickson (1973) to describe work-loads. The entropy of each task was $p \log_2 p$, where p was the proportion of the work period devoted to the task. The entropy of the total job was the sum of the entropies of its constituent tasks. This entropy measure tends to reduce the contributions of minor task variations to an observational measure of overall job variety. According to Dickson

> ... the work of one day could consist of packing one product for seven hours and six products for five minutes each. Alternatively, the work of one day could consist of packing seven different products for one hour each. In both of these days' work, the number of different tasks is seven and the number of changes of task is six, but the entropy measures of variety are higher for the second day's work (1973, p. 723).

Monotony. Two fixed-alternative questions were used to measure workers' perceptions of how monotonous their jobs were, one referring to how repetitive their tasks were and the other referring to how much variety there was. Observers used similar questions dealing with

repetitiveness and variety to provide their subjective estimates of the monotony of the observed jobs.

Boredom. This measure used two fixed-alternative questions: "How often on your job does the time seem to drag?" and "How interesting is your work?"

Intelligence was estimated from interviewers' ratings of workers. In a related study (Quinn and Shepard, 1974) the same interviewers' ratings correlated .72 with tested intelligence as measured by the Amons Quick Test.

Off-the-job activity level. This measure was the amount of the worker's participation in 20 recreational, social, and familial activities not related to work.

Results

The product-moment correlations between task characteristics and measures of monotony and boredom appear in Table 1. Since differences between these Pearson r's and comparable eta coefficients of association were small, it could safely be concluded that the observed relationships were generally linear.

Task characteristics expressed in various ways were significantly related both to the perception of monotony and to feelings of boredom. They were, predictably, most strongly related to the observers' perceptions of monotony in the jobs they observed, somewhat less strongly related to workers' own perceptions of monotony in their jobs, and least strongly related to workers' feelings of boredom.

The poorest observational predictor of monotony and boredom was the number of tasks performed during the observational periods. The best and most parsimonious predictor was the number of times the

Table 1

Correlations (Pearson r's and Etas)[a] between Task Characteristics, Perceived Monotony, and Feelings of Boredom (N ~370)

Task characteristics[b]	Pereceived Monotony		Worker's feelings of being bored
	By worker	By observer	
Number	.07 (.06)	.36** (.35)	.13* (.11)
Durations	.22** (.27)	.30** (.43)	.11* (.17)
Repetitions	.26** (.27)	.58** (.58)	.19** (.21)
Ratio of durations and repetitions	.20** (.28)	.36** (.47)	.10 (.19)
Entropy	.20** (.24)	.24** (.33)	.08 (.10)

*$p < .05$

**$p < .01$

[a]Eta coefficients are shown parenthetically. In computation of etas, each task characteristic was trichotomized, and the monotony and boredom measures were treated as continuous variables.

[b]For the computation of Pearson r's the direction of some measures of task characteristics were reversed so that a higher score on a measure would always represent greater observed monotony. All Pearson r's should therefore be expected to be positive.

most-frequently-repeated task was repeated, with the duration of the average task a close second. Neither of the conceptually and mathematically more ornate estimators of task variety--that is, entropy and the ratio of durations and repetitions--was superior to the simple measure of repetitions as a predictor of perceived monotony. Nor was either significantly related to workers' feelings of boredom.

The moderating effects of intelligence and off-the-job activity level are indicated by the differences between the pairs of correlations in Table 2. Since repetitions were the best and simplest predictors of monotony and boredom, the task characteristics referred to in Table 2 are based only on the repetitions measure.

Intelligence had no significant effect upon the association between job characteristics and either monotony or boredom. The moderating effects of intelligence were confined to the relationship between perceived monotony and feelings of boredom. That is, monotony was more closely associated with boredom among more intelligent workers. The moderating effects of off-the-job activity were likewise strongest on the relationship between perceptions of monotony and feelings of boredom, with the latter two variables being more strongly related among workers who were more active off their jobs.

Discussion

That the associations between task repetitiveness and both monotony and boredom were palpable but small suggests that the major sources of occupational boredom and monotony be sought in working conditions other than task variety.

Table 2

Correlations (Pearson r's) between Monotony and Boredom for Workers Differentiated by Intelligence and Off-the-Job Activity Level

Indicator of monotony and boredom	Intelligence			Off-the-job activity level		
	High (N=168)	Low (N=202)	Difference	High (N=174)	Low (N=196)	Difference
Observed variety (repetitions), by..						
..Observers' perceptions of monotony	.56	.57	-.01	.61	.54	.07
..Workers' perceptions of monotony	.34	.16	.18	.25	.23	.02
..Workers' feelings of being bored	.27	.12	.15	.30	.09	.21*
Workers' perceptions of monotony, by workers' feelings of boredom	.52	.31	.21*	.59	.17	.42**

* $p < .05$

** $p < .01$

[a] Some measures were reversed so that a higher score would always reflect greater monotony or boredom. All correlations should therefore be expected to be positive.

Some leads in this search are provided in Fenichel's (1951) psychoanalytic approach to boredom and the neurophysiological ones of Berlyne (1960) and Hebb (1958). Geiwitz's experimental tests and synthesis of these approaches identify cognitive arousal and environmental constraint as the two major determinants of boredom, relegating repetitiveness to an equivocal position. Job enlargement programs often involve many simultaneous organizational and task changes. Geiwitz's theory would suggest that what should be altered in such programs should, oddly enough, not be variety, either exclusively or even principally. Instead, it should be yet another of Hackman and Lawler's core dimensions--autonomy. Even matters commonly dismissed as palliatives in job redesign--such as music at the workplace--have a firm psychological base as possible reducers of boredom in Geiwitz's theory.

Among the task characteristics capable of predicting monotony and boredom, the best was how often the most-frequently-repeated task was repeated. This would suggest that task redesign efforts will be unsuccessful if they are confined simply to grafting on a few peripheral activities "for variety's sake" to a basically highly repetitive job. The unaltered repetitions would defeat such a cosmetic effort.

That the effects upon boredom of jobs that were perceived as monotonous were smallest among less intelligent and socially active people than among others has some disturbing practical implications. If social activity is simply an indicator of alienation, it is alterable by social change. It may, however, reflect instead extroversion-introversion, and in doing so there are some plausible links between Geiwitz's (1964)

cognitive arousal approach to boredom and Eysenck's (1957) explanation of introversion-extroversion in terms of excitation-inhibition theory. Suppose, then that "enlarged" and "enriched" jobs are allocated principally to those who will be most responsive to them. Where the allocation criteria are intelligence and introversion-extroversion the criteria of allocation are in part genetically determined (Brody, 1972). Such allocation, while beneficial in intent, may be Orwellian in effect.

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